

Date: January, 29th 2020

Oum el Bouaghi University
Faculty of Science and Applied Sciences
Department of Process Engineering
First year master chemical Engineering students
English exam

Exercise 1: (5pts)

Rewrite the sentences using the linking word in brackets. Make the necessary changes:

1. Mark is learning German. He wants to apply for a job in Germany (in order to).
2. The football match was cancelled. One of the goalkeepers was ill (due to).
3. My car has just broken down. I'll have to buy a new one (since).
4. She didn't get the job. She had the right qualifications (in spite of).
5. My father's health has improved a lot. He gave up smoking two months ago (as a result).
6. Carol failed her exam. She didn't study hard (so).
7. Do your homework or you'll be punished (if).
8. He couldn't catch the bus. Pat was late for the conference (because).
9. My brother speaks English fluently. He's studying French now (moreover).
10. Pass me the pen, please. I want to sign the petition (to).

Exercise 2: (15pts)

The abstract below is extracted from a research report

A different pressure thermally coupled extractive distillation process has been **applied** on the separation of propylene and propane with **aqueous** acetonitrile (ACN) solution as entrainer. The **novel** distillation process integration is the combination of different pressure thermally coupled distillation (DPTCD) and extractive distillation (ED). Both the new process and the **conventional** process have been **simulated** in Aspen Plus. Sensitivity analysis has been **conducted** to select an appropriate compression ratio and other operating parameters based on the priority that the propylene product purity is 99.2 wt % and less energy consumption. The **influence** of the proposed distillation column on energetic and economic aspects is **evaluated** through intensive comparison against the conventional stand-alone column, and better performance is **achieved** with up to 46.02% energy **saving** and close to 9.7% saving in total annual cost (TAC)

1. Give an appropriate title of your own to the abstract
2. Suggest 5 keywords
3. Give synonyms to the underlined words and put them in sentences of your own

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Exercise 1: (5pts)

Rewrite the sentences using the linking word in brackets. Make the necessary changes:

1. Mark is learning German in order to apply for a job in Germany.
2. The football match was cancelled due to the illness of goalkeepers .
3. I'll have to buy a new car since mine has just broken down
4. In spite of having the right qualifications she didn't get the job.
5. My father gave up smoking two months ago as a result his health has improved a lot.
6. Carol didn't study hard so she failed her exam.
7. If you do not do your homework you'll be punished.
8. Pat was late for the conference because he couldn't catch the bus.
9. My brother speaks English fluently. Moreover, he's studying French now.
10. Please pass me the pen to sign the petition.

Exercise 2: (15pts)

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A different pressure thermally coupled extractive distillation process has been **applied** on the separation of propylene and propane with **aqueous** acetonitrile (ACN) solution as entrainer. The **novel** distillation process integration is the combination of different pressure thermally coupled distillation (DPTCD) and extractive distillation (ED). Both the new process and the **conventional** process have been **simulated** in Aspen Plus. Sensitivity analysis has been **conducted** to select an appropriate compression ratio and other operating parameters based on the priority that the propylene product purity is 99.2 wt % and less energy consumption. The **influence** of the proposed distillation column on energetic and economic aspects is **evaluated** through intensive comparison against the conventional stand-alone column, and better performance is **achieved** with up to 46.02% energy **saving** and close to 9.7% saving in total annual cost (TAC)

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For the solution refer to the scientific paper given to you: there are many possible solutions to the above questions